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4. Tense and Agreement in Dutch: Data from an elicitation task

4.1 Introduction

According to the literature, grammatical SLI is characterised by specific problems with functional categories (see sections 2.5.1 and 2.6): there is a low production rate for these morphemes in obligatory contexts, and substitution errors occur.

Discriminant function analysis has been employed to determine characteristics that distinguish children with SLI from normal children and the outcomes point at shortcomings in the verb system and verb morphology as predictors of SLI. Adopting this type of analysis, Fletcher and Peters (1984) found that a higher frequency of unmarked verb forms characterised their SLI individuals. Gavin et al. (1993) established the same for 'verb phrase errors' in their LARSP-based analysis. However, in their terminology, verb phrase errors consisted of omissions of auxiliaries and copulas. Omissions of inflectional morphemes were counted under 'word errors', which did not qualify as a discriminating category²³. In a more recent attempt to find a variable that could distinguish between children with SLI and typically developing children, Bedore and Leonard (1998) performed a discriminant function analysis as well. Grammatical morphology - operationalised by a verb morpheme composite - proved to be the most sensitive measure. It predicted membership of the SLI group with a high degree of accuracy. The composite consisted of regular past tense affix *-ed*, present tense third person singular *-s* and finite forms of copula and auxiliary *be*. Omission of these elements was identified with the SLI children.

The practice of MLU-matched group comparisons between children with SLI and younger language age peers has demonstrated time and again that inflectional morphology, in particular on verbs, falls short of the level predicted by the general language delay seen in language-impaired children (selected sources include Clahsen, 1989; Conti-Ramsden & Jones, 1997; Johnston & Kamhi, 1984; Johnston & Schery, 1976; Leonard, 1989; Leonard et al., 1992; Steckol & Leonard, 1979). As sentence structure becomes more elaborate, inflectional morphemes remain out of synch with syntactic development.

In this chapter, I will discuss functional categories in the output of Dutch children with SLI. For Dutch, not much is known about the particular grammatical errors that are characteristic of the disorder. In order not to depend too much on the preconceptions of SLI that are advanced by a literature that is mainly oriented towards the study of English-speaking populations, a description of the grammatical symptoms of Dutch SLI is crucially important. Functional categories will be the dependent variable in this chapter, the independent variable being the general morphosyntactic problems that

²³Gavin, Klee and Membrino were restricted in their choice of variables because their selection contained only LARSP composite measures.

served as the reference criterion for inclusion of these children. In Chapter 5, the findings will be compared with the predictions that follow from the linguistic theories outlined in section 2.6.

The error patterns that relate to functional projections will serve as the *independent* variable for a comparison within the language-impaired group in section 8.7. Usage of grammatical morphemes will be employed as the measure by which children are identified as members of a subgroup of SLI subjects. Children with obvious morphological difficulties will be distinguished from children with mild morphological difficulties. This dichotomy makes it possible to answer the question whether morphological difficulties correlate empirically with problems in the area of verb argument structure (an area to be investigated in Chapter 8) or whether argument structure appears as a separate locus of difficulties. The selection of the children who participate in the comparison will be described in sections 4.2.4 and 4.3.4.

4.1.1 Criteria for use of grammatical morphemes

The subgroup formation that will serve the comparison in section 8.7 requires the selection of a criterion. This should reflect children's sensitivity to the obligatoriness of grammatical morphemes. The criterion for acquisition is a matter of some dispute. Brown (1973; see Johnston & Schery, 1976, for an application to SLI) established 90% use in obligatory contexts as a criterion for acquisition - 'full knowledge' (Lahey, 1988) - of a grammatical category. Obviously, this is an arbitrary value. Crago and Gopnik (1994; Gopnik, 1994) have argued at length that a criterion for the use of a rule cannot in itself demonstrate the presence ('full knowledge') of a rule. According to them, traditional cut-off criteria like 75% or 90% are not valid. They quote Klee & Paul (1981) who suggested that even 50% production of a form shows that the child 'has it'²⁴. Challenging that position, Crago and Gopnik stress that a child who does not have *control* of a grammatical rule can still produce forms that obey the rule, albeit in a haphazard manner. Gopnik (1994) writes, with the same caveat in mind: "when we refer to a form produced by an impaired speaker as being a 'past form' we mean that the item has the same surface form as the normal past form. We do not mean to imply that for the language-impaired subjects it is marked either for tense or for past." (Gopnik, 1994:111) While this caution is appealing - one must really know more of a child's linguistic system to conclude that it is deficient - it has some circularity to it. This issue was discussed before (2.6.4) but it needs revisiting. In Gopnik's (1990) case study of a language-impaired child she declares that his correct forms result from a faulty grammatical system, just like the errors. She locates the problems in the absence of 'semantico-syntactic features'. The child was thought to be blind to features like person, number, etc. Using a child's errors to demonstrate the dysfunction in his grammar invites the question of how much deviance one needs to be confident of this diagnosis. In other words, one wants a criterion. In Gopnik's view, there is no continuum between normal language development and delay or deviance. The child with

²⁴Crago and Gopnik wrongly attribute this observation to Miller, who was the editor of the volume in which Klee and Paul's chapter appeared.

SLI is qualitatively different from a typical child. A criterion, on the other hand, would have saved us from the anecdotal angle.

Crago & Gopnik's attack on Klee and Paul's (1981) article does not do justice to the full rationale of their remarks. Klee and Paul write: "For those forms or constructions used in 50-90% of the obligatory contexts, we will hypothesise the existence of a grammatical rule that is applied variably because of unspecified performance constraints. *The lower limit is arbitrary.*" (Klee & Paul, 1981:87; the italics are mine). Obviously, this rule of thumb lacks a motivated criterion as well. It does, however, address an important issue: the inconsistency of SLI children's linguistic behaviour (cf. Bishop, 1994) or, in Klee and Paul's terms, the application of a variable rule. Variability is a key attribute of SLI children's performance.

In this study an arbitrary 75% criterion is adopted. This cut-off point was chosen in full awareness that the criterion is merely descriptive, not explanatory. It is administered solely to create subgroups of children who behave in a similar fashion on a particular task (4.2.4, 4.3.4). As Lahey put it, "criterion-referenced descriptions are used when the purpose of the observation is to determine how well a certain behaviour is established in a child's repertoire" (Lahey, 1988:142). This is exactly the purpose that the criterion will serve here.

4.1.2 Previous research on Dutch SLI: Bol and Kuiken (1988)

The most important research on grammatical SLI in Dutch children so far has been done by Bol and Kuiken (1988, 1990). Their work described the morphosyntactic output of normal children between 1 and 4 years old, and compared it with the performance of three groups of language-impaired individuals: children with hearing impairment, children with SLI, and a group of Down's syndrome subjects (children and teenagers). Bol and Kuiken's descriptive model was the LARSP profile chart (Crystal, Fletcher & Garman, 1976), which they revised for their study of the acquisition of Dutch, based on an elaborate child language corpus. LARSP (or its counterpart in the Dutch study, GRAMAT) provides an inventory of clausal and phrasal constructions and morphological markers. Morphology is analysed in terms of the number of inflected forms that are present in the language sample. Within Bol and Kuiken's comparison between children with SLI and normals a significant difference was found for the marking of first person singular in the present tense. The SLI subjects surprisingly did not perform worse on third person singular. It is important to note, however, that an overt third person singular marker was not always necessary for the verb form to be counted as marked for third person. In particular the modals (that in Dutch can also be used without a verbal complement; cf. 7.2.2) do not show the regular present tense marker *-t*. Moreover, only correct verb forms (that is, forms that showed grammatical concord) were counted. It is fair to say, then, that if we want to know about errors made by children with SLI - for instance, to what extent the third person marker *-t* is supplied in obligatory contexts - it is by definition not possible to gather that knowledge from the profile charts. Because not all occurrences of third person singular (present tense) are overtly marked for person (*-t*), it is also hard to gain insight into the availability of the general paradigm. For past tense marking the same is

true, *mutatis mutandis*. Erroneous past tense forms are not separated from correct forms in the profile. And again, the chart does not take stock of omissions.

Summarising, while Bol and Kuiken (1988) were able to pinpoint a number of differences between language-impaired children and children with normal language development²⁵, an analysis of errors is needed to draw up the contours of grammatical SLI in Dutch children. It does not suffice to compare the number of realisations of any particular grammatical morpheme: errors must be counted and they must be related to the number of obligatory contexts that are available. Therefore, GRAMAT variables cannot act as the type of independent variable that we will need in chapter 7.

4.1.3 Typology of Dutch

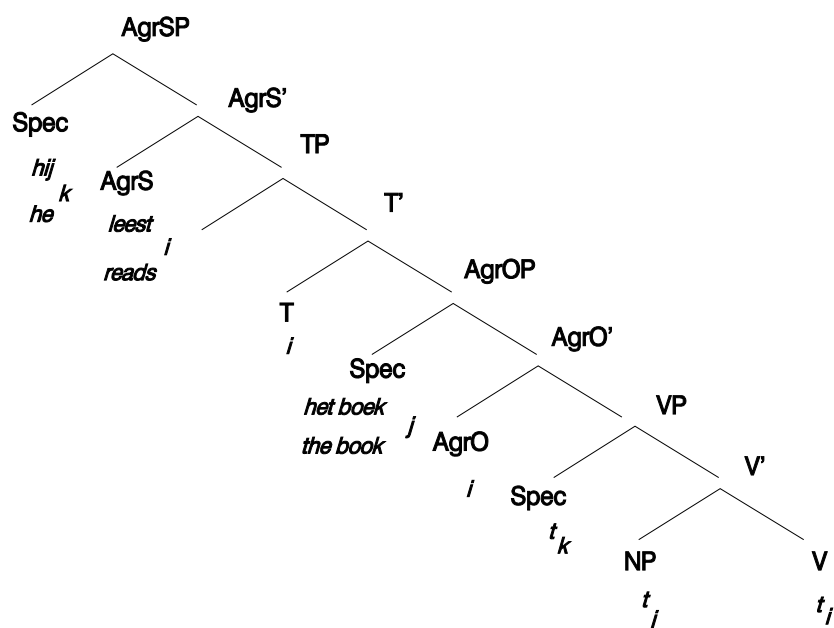
Two things are important to point out when we deal with inflection in Dutch: the inflectional paradigm and the relation between verb position and inflectional status.

Dutch is generally considered an SOV language. The basic word order is found in dependent clauses. The infinitival verb is base-generated in final position. The position of the finite verb is second in matrix clauses and after topicalised elements. It is first in yes-no questions. Verb second involves a movement of the verb from its base-generated position to a functional head dominating V (C or I) (Haegeman, 1991; Wijnen & Verrips, 1998).

In terms of the Minimalist framework (Chomsky, 1992), on the other hand, the *finite* verb is generated and its features are checked. For instance, Figure 4.1 shows that the verb is checked for tense (T; witness the trace *i*) and agreement (Agr) before ending up in second position²⁶. Characteristic of Dutch is the correlation between verb position and form: the infinitival form typically occurs in final position, the finite verb in second or fronted position.

²⁵Beyond morphology, significant differences were found in the number of subject predicate structures and pronouns. On both measures the children with SLI fell short of the frequencies found in the normals. They exceeded the normal group in their production of structures that *lack* a subject predicate structure.

²⁶This configuration conforms to Zwart (1993). Previously, a COMP position for the verb would be assumed for this type of sentence. Under the Minimalist Program, COMP requires justification (e.g. subject-verb inversion in topicalisation; see Figure 5.1). Only if 'more structure' must be built to account for the sentence structure, COMP is introduced.



(a)

Figure 4.1. Sentence structure for the matrix sentence in Dutch.

The paradigms for present and past tense formation are contained in Table 4.1. Some items require explanation:

- The plural marking *-en*, in present as well as past tense, is habitually reduced to *-e* (schwa). The infinitive is homonymous to the present tense plural form and also undergoes reduction: *-e(n)*.
- While number is represented as a ‘dimension’ (Pinker, 1984) in the Dutch past tense paradigm, person is not. In reality there is even more syncretism. After all, final *-n* in the plural forms is usually phonologically reduced (see above) so that the distinction between plural and singular affixes in the past tense is virtually neutralised.
- The selection of the regular past tense affix is determined by the final segment of the verb stem. If the final consonant of the stem is unvoiced, the past tense marker is *-te(n)*. If the stem ends in a vowel or the final consonant is voiced, the marker is *-de(n)*.
- There are two types of irregular past tense; with stem vowel change only and (this is a rarer form) with vowel change plus consonant change or consonant addition. Irregular past tense has a plural marker *-en* following the singular form. If the singular form has a short vowel, the vowel is lengthened in an open syllable.

Table 4.1. Inflectional paradigms for present and past tense in Dutch.

Present Tense	<i>Singular</i>	<i>Plural</i>
First person	-0 ²⁷	-en
Second person	-t (-0 in VS order)	-en
Third person	-t	-en
Regular Past Tense	<i>Singular</i>	<i>Plural</i>
All persons	-de / -te	-den / -ten

4.2 Past tense marking

The narrative task that was used to elicit functional categories was designed to enhance the production of regular past tense forms preferably (3.4.1.2).

The production of past tense forms by children has drawn much attention throughout the history of language acquisition research. Past tense formation is a prototypical case of learning an abstract linguistic rule. Past tense is the subject of much debate on how rules are inferred by the child. The marking of tense on the verb stem involves the mapping of a semantic notion (time) to a grammatical notion (tense). Past tense learning also necessitates knowledge of an inflectional paradigm (cf. Table 4.1). Typically, in many languages, past tense is either marked by adding a morpheme to the stem (a regular past tense form) or by supplying a form outside the past tense regularity (an irregular past tense form). That a linguistic rule for tense marking is operational is evidenced by instances in which the regular marker is added to the stem of a verb that is not subject to the rule (overregularisation). The application of past tense rules is a useful diagnostic measure of verbal inflectional morphology.

There are opposing views on how children learn to use the correct forms for past tense. One theory claims that past tense learning follows two distinct routes (the *hybrid* or *dual route* model; Pinker & Prince, 1988). According to this theory, an associative memory bank suffices for the (rote) learning of irregular forms. A linguistic rule for past tense guides the learning of regular forms. The rule is not applied to a verb if a past tense form is already there: in that case, the current form blocks a novel item. This way, it should not interfere with an irregular past tense form that has already been memorised by the child, unless the form is not yet stable, that is: has not left enough memory traces to resist the new form. If a form is not yet available, overregularisations are possible. Overregularisations are unlearned by the (re)introduction of irregular forms that in turn block them²⁸.

²⁷'0' indicates zero affix.

²⁸The availability of an irregular past tense form is not an absolute safeguard from overregularisation. This is shown by the occurrence of errors in which an irregular singular past tense form (rather than a stem) is followed by the past tense suffix.

Another point of view is that there is one common path that leads to the learning of both the regular and the irregular forms (*single route model*). Input frequency and sound-form correspondences should teach the child the correct forms. A single route model has been advocated by connectionists, who found no influence of rule learning when they simulated the acquisition of past tense. Probabilistic learning, they demonstrated, was sufficient to acquire the regularities and the irregular forms. In this view *awareness* of a linguistic rule is by definition not necessary (Rumelhart & McClelland, 1986).

Whatever the need for a linguistic rule itself in teaching the child the correct past tense forms, application of a past tense rule (also marked by overregularisation) is a valid measure to determine the stage of morphological proficiency of the subjects in this study. To explore which of the two opposing points of view can be supported a longitudinal approach would be required. As this study is cross-sectional, the issue cannot be examined here.

4.2.1 Past tense in SLI

The past tense *-ed* marker is one of the vulnerable morphemes in English-speaking children with SLI (Fletcher & Ingham, 1995). In this section I will review the nature of this difficulty. It should be noted, however, that it is not yet clear how universal the problems with past tense formation are. For Hebrew, they have been shown to be non-existent. Rom and Leonard (1990) found no difference whatsoever in past tense realisation between Hebrew-speaking children with SLI and their MLU matches. Leonard (1992) used this finding to support his sparse morphology hypothesis: children learning Hebrew would benefit from the rich morphology of their native language. Clahsen (1989; 1992) fails to mention past tense in his study on German SLI. Where he discusses overregularisation, his focus is on past participles. In their study on a group of Swedish SLI children, Hansson and Nettelbladt (1995) found no difference between their (five) SLI children and the MLU matches for omission of past tense markers in either regular or irregular verbs.

A dual route for past tense learning (Pinker and Prince, 1988) is associated with an innate capacity to infer a linguistic rule from the input by positive evidence only. The availability of this capacity has been questioned with regard to English-speaking children with SLI. According to the Rule Deficit hypothesis (Rice & Oetting, 1993; Gopnik & Crago, 1991), only one of the two routes within the dual route model is accessible to children with SLI. As these children lack the symbolic rule for past tense marking, they must rely primarily on their associative memory to retrieve past tense forms.

A study by Gopnik (1994) concerned the London family that had been introduced by Gopnik and Crago (1991). In a detailed study that focused on the family members' use of past tense, the language-impaired individuals were shown to perform poorly on many measures, like the use of past tense markers in obligatory grammatical contexts (in spoken language as well as in their written diaries) and their performance on a tense changing task. Gopnik claimed that the impaired family members lacked the rule for marking past tense. At the same time - the presence of adverbial markers testifies to this - they were able to express temporal reference.

Moore and Johnston (1993) explicitly compared temporal markers in lexicon and morphology, using a sentence completion task and WH-questions, by which they aimed to elicit past tense forms and past temporal adverbs. Their SLI group was around five years of age. The children performed like 4-year olds in adverbial marking, while their tense marking was not unlike that of 3-year old matches²⁹.

In a study by Leonard et al. (1992) (American) English-speaking children with SLI were found to omit the past tense marker *-ed* significantly more often than their MLU peers. No significant difference was found for the production of irregular past tense forms. Surprisingly, these authors found that several of the same language-impaired children who omitted *-ed* inflections sometimes used them in overregularised forms (Bishop, 1994, reported a similar finding for English children with SLI). Leonard (1994) tried to clarify this contradictory finding by proposing another perspective: it is not the occurrence of overgeneralisations that should attract our attention - the frequent omissions are the more important phenomenon. What is revealed, in his opinion, is that a general paradigm is under construction (witness the overregularisations) in which a number of cells are as yet filled by unmarked verb forms. One might imagine them as similar to the cells in the paradigm for 'put', where cells for past as well as for present are filled by an identical form, *put*.

What is clear from these findings, whatever the explanation, is that there is a possible discrepancy between paradigmatic learning (as illustrated by the overregularisations) and learning to mark tense in a consistent way. While the paradigm is in the making, the marker itself remains vulnerable (Bishop, 1994).

One assumption that remains controversial is that irregular past tense is preserved in SLI, whereas regular past tense is affected. Not all authors subscribe to this conclusion. Counterevidence was found by Bishop (1994), by Leonard et al. (1992) and by Ullman and Gopnik (1994); they found that the morphological impairment implicated irregular verbs as well.

Bishop (1994) pointed at the inconsistency of morphological marking by SLI children. Forms that were produced in one context were substituted by bare stems in another. She found that this inconsistency affected irregular past tense marking as well. This is hard to explain under a rule-deficit hypothesis: irregular forms must be learnt by rote, item by item, and should be immune to a focal deficit that pertains to rules. Bishop concluded that the difficulties for language-impaired children do not reside in paradigmatic learning. This is supported by her finding that errors predominantly take the form of omission, not of commission (substitution). Of course, overgeneralisation is equally incompatible with a deficit in the learning of abstract morphological rules. After all, overgeneralised forms constitute pre-eminent evidence of a rule at work.

One can infer the following prediction from the literature: *SLI children will mark past tense in obligatory contexts less often than chronological age peers or younger children with a comparable language age.*

Next to past tense marking per se, the present analysis will also involve an exploration of the discrepancy between instances of regular and irregular past tense formation,

²⁹This finding provides a snapshot of the pattern often found in SLI: lexical knowledge is below CA level, but above LA level.

although the literature does not allow for a straightforward prediction - the findings are ambiguous. Overregularisation - as a litmus test of rule learning - will also be analysed.

4.2.2 Past tense: Analytical categories

The coding categories that were employed for the analysis of past tense are: Regular past tense forms, Irregular past tense forms, *Ging(en)* + infinitive, Overgeneralisations, Omission of past tense markers in obligatory context. Some categories require clarification or an explanation of analytical decisions.

Ging(en) + infinitive. The verb *gaan* ('go'), of which *ging* and *gingen* are the singular and plural past tense forms, is an auxiliary. In its 'rich' version, *gaan* expresses an inchoative aspect. In referring to past tense, however, *gaan* is often used in a 'light' (pleonastic) way. It merely carries the tense marker; it has no semantic load that adds to the main verb predicate. The use of *gaan* is often seen as an alternative strategy for expressing tense (the same is true of the 'light' version of present tense *gaan*). It is often regarded offhand as a way of avoiding inflection of the main verb. As the data will demonstrate, these occurrences take a substantial share in the total amount of past tense productions. While *gaan* is an irregular verb, the past tense forms of *gaan* were excluded from the category of irregular verb forms.

Omission in obligatory context calls for a definition of the context. Criterial for the use of past tense might have been a narrative context that is situated in the past. The nature of the task however - the child narrates a story that it has just witnessed - enabled the children to switch narrative time *ad libitum*, or so it seemed. Therefore, only one valid obligatory context was available: the occurrence in the sentence of an adverbial phrase indicating pastness. This was, in all cases, the adverb *toen*. In English (*then*) and German (*dann*) the adverb is ambiguous: it can refer to past as well as to present and future. Dutch *toen*, if it is an adverb (it can also be a complementiser), can only refer to past events (present and future are referred to by *dan*). One other obligatory context could be found. If a main clause is in the past tense, the dependent clause should maintain this value for tense. There were only a few of these cases; numbers were negligible.

To summarise, an omission of a past tense marker was counted if, in the context of a past adverbial (or in the dependent clause context I just described) the past tense marker was omitted or if the past tense form was substituted by a present tense form. It should be noted that the issue here was tense marking. Consequently, whether a verb was marked for subject-verb agreement was not relevant. A form that showed no concord with the subject was included if it was marked for past tense. On the other hand, if a form was neither marked for tense nor for agreement, the omission was included in the present analysis as well as the subject-verb agreement analysis (4.3).

Overgeneralisations were counted separately, not under irregular or regular verb forms - the categories are mutually exclusive. Past tense suffixes on irregular forms (instead of on the *stem* of the irregular verb) were included, because they are also indicative of awareness of a general paradigm.

Finally, it should be noted that the marked preference that exists in Dutch (as in German) for perfect tense over past tense in the relating of past events concerns the report of a personal experience of the narrator rather than a 'borrowed' third person narrative. Consequently, this typological bias was not reflected in the children's renderings of the Pingu narrative.

4.2.3 Past tense: Results

Three groups were included in the comparison. Besides the SLI group (n=35), a group of chronological age peers (n=35) was selected as well as a group of younger children (n=20). For a rationale with regard to this comparison, I refer to section 3.4.1.1.

Before discussing the results, a few words must be said about the efficacy of the Pingu task (3.4.1.2) as a past tense elicitor.

There were some factors that interfered with the results, artefactual and otherwise. The most important one was the inclination of some children to substitute dramatic present for past tense as a narrative mode. Also, there was a tendency among quite a few of the SLI children to omit the verb entirely in several utterances. As a consequence, many of their utterances did not enter the past tense analysis.

By and large, the children understood the requirements of the task. For some children, especially among the youngest normals, it was hard to confine their responses to the fragment they had just watched. Instead, they volunteered flashforwards that covered the remaining part of the story or they restricted themselves to a general storyline that was repeated after successive episodes. This influenced the production of targeted forms only marginally.

The absolute numbers of past tense forms produced by the children can only serve to indicate a general sense of productivity in each of the groups. A complicating factor in drawing the comparison, after all, is sample size difference. Ideally, samples are of similar length. The task, however, while it was administered in a similar way with each child, did not constrain the number of utterances the child would produce. If a fixed number of T-units for each child would be taken (necessarily the lowest number produced by an individual), too many records would have to be sacrificed. To compensate for this lack of genuine comparability it was necessary to find ways of rendering the data proportional instead of absolute. The following sections will tackle the problem of differential sample size by yielding proportional measures.

Meanwhile I will briefly consider the absolute numbers (Table 4.2).

Witness the statistical differences, the SLI children produced fewer regular past tense forms than either of the control groups. They also omitted past tense inflections more often, which confirms the prediction gathered from the SLI literature. If we take the numbers of T-units into consideration, the difference between the SLI group and the controls is even more remarkable: the children with SLI produced longer samples and yet expressed fewer past tense forms.

Table 4.2. Past tense categories; absolute number of occurrences; means (standard deviations between brackets)

	<i>Children with SLI (n=35)</i>	<i>Younger ND children (n=20)</i>	<i>CA matches (n=35)</i>
Age in months	93.4 (11.9)	59.6 (7.4)	91.4 (13.8)
Number of T-units	66.1 (16.9)	49.6 (14.9)	59.3 (14.3)
Regular past tense forms	3.0 (5.3)	6.2 (1.0)	10.6 (6.0)
Irregular past tense forms	14.9 (12.2)	18.8 (9.3)	27.4 (10.9)
'Ging(en)' (past tense of 'go') + infinitive	10.9 (10.3)	8.9 (7.1)	10.2 (7.8)
Omission of past tense marker in obligatory context	2.2 (3.6)	0.2 (0.8)	0.0 (0.1)
Overgeneralisations	0.6 (1.1)	1.2 (1.6)	1.3 (1.6)

Significant differences

Regular past tense forms:

SLI < Chronological age peers (p=0.0000; Z=-5.4773)

Younger children < Chronological age peers (p=0.0000; Z=-4.2599)

Irregular past tense forms:

SLI < Chronological age peers (p=0.0001; Z=-4.0500)

Younger children < Chronological age peers (p=0.0003; Z=-3.6329)

Omission of past tense marker in obligatory context:

SLI > Chronological age peers (p=0.0000; Z=-5.4732)

SLI > Younger children (p=0.0013; Z=-3.2187)

Younger children > Chronological age peers (p=0.0323; Z=-2.1406)

Overgeneralisations:

SLI < Chronological age peers (p=0.0800; Z=-1.7506)

4.2.3.1 Use of past tense morphemes in obligatory context

The standard measure for productivity of a grammatical morpheme is its use in a grammatically obligatory context. Lahey (1988) cited a 90% criterion for achievement (or acquisition; Johnston & Schery, 1976). Numbers for use in obligatory context are available (Table 4.3) but by definition they represent only a subset of the past tense tokens. After all, under the strict criterion of an obligatory context *within* the utterance, occurrences of past tense that are not accompanied by a past adverbial are excluded from this analysis. It should be noted that it was not possible to include children in this analysis in whose output there was no obligatory context for a past tense form. This

was the case for six of the language-impaired children, so Table 4.3 contains the data of only 29 members of the SLI group³⁰.

It is clear that omission of past tense in an obligatory context is a variable that sets the SLI group apart from either of the control groups. While the absolute numbers already showed that this is a nearly exclusive trait of the SLI group, the numbers for obligatory use indicate that the marker is vulnerable, while not generally missing: the mean use is situated above a 75% level (but far below Brown's 90% criterion for acquisition). The standard deviation indicates that many children with SLI failed to meet the criterion. All of the controls, on the other hand (including the younger children), showed full acquisition according to the 90% criterion.

Table 4.3. Percentage of use of past tense marker in obligatory context; means (standard deviations)

	<i>Children with SLI (n=29)</i>	<i>Younger ND chil- dren (n=20)</i>	<i>CA matches (n=35)</i>
Age in months	93.7 (11.4)	59.6 (7.4)	91.4 (13.8)
Percentage of use of past tense form in obligatory context	0.77 (0.26)	0.98 (0.04)	0.99 (0.00)

Significant differences

Percentage of use of past tense form in obligatory context

SLI < Chronological age peers (p=0.0000; Z=-6.1823)

SLI < Younger children (p=0.0000; Z=-4.2563)

4.2.3.2 Relative share of past tense categories

Another way of avoiding the problem of unequal sample sizes is to watch the share that each of the categories takes in the children's past tense morphology. With this aim in mind, the relative proportions of the past tense categories were computed for each child. Individual percentages were averaged per group (Table 4.4). This analysis served to show whether there are between-group differences in the share that the past tense classes constitute.

Again a number of children were excluded from the SLI group. Some children hardly used past tense forms at all (that is, the number of tokens was under 5) or lacked contexts for them. They were excluded. That the number of subjects is different from that in the context analysis is due to the fact that a child who failed to fill past tense contexts with past tense forms was part of the previous analysis, but did not qualify for this analysis because there were no past tense forms in the output.

As mentioned before, the use of *ging(en)* complemented by the infinitive of a lexical verb was a device that subtracted seriously from the inventory of past tense forms of

³⁰ Means for age were calculated accordingly. The same is true for Table 4.4.

lexical verbs. An interesting question is, to what extent each of the groups participating in the task relied on the use of pleonastic *gaan*. It is often said that children with SLI use the auxiliary verb strategically, to side-step inflection of the lexical verb. The data produced by this analysis were revealing in that respect. There was a significant difference between the children with SLI *as well as* the younger children when they were compared to the chronological age matches of the SLI group. The SLI group and the younger children more often resorted to past tense forms of *gaan* complemented by the infinitival form of a lexical verb. If a strategy is at work, it is just as much a part of the younger normals' repertoire³¹. The same goes for the share that regular forms take in the children's output; for this category the chronological age peers are ahead of either group.

Table 4.4. Past tense forms; percentage that each category took in the total of past tense forms; means (standard deviations)

	Children with SLI (n=28)	Younger ND children (n=20)	CA matches (n=35)
Age in months	94.6 (11.6)	59.6 (7.4)	91.4 (13.8)
Regular past tense forms	0.10 (0.12)	0.10 (0.11)	0.22 (0.12)
Irregular past tense forms	0.49 (0.16)	0.52 (0.21)	0.55 (0.11)
'Ging(en)' + infinitive	0.38 (0.23)	0.33 (0.20)	0.21 (0.14)
Overregularisations	0.02 (0.03)	0.03 (0.06)	0.03 (0.04)

Significant differences:

Regular past tense forms:

SLI < Chronological age peers (p=0.0001; Z=-3.8669)

Younger children < Chronological age peers (p=0.0006; Z=-3.4426)

'Ging(en)' + infinitive:

SLI > Chronological age peers (p=0.0023; Z=-3.0443)

Younger children > Chronological age peers (p=0.0157; Z=-2.4158)

4.2.3.3 Subtypes of past tense omission errors

Omission of past tense markers on verbs, rare in even the younger members of the control groups, was not uncommon in the output of the children with SLI. Their errors merit discussion. For a further analysis of these errors I will abstract away from the group comparison and concentrate on the past tense errors by the SLI children. It is

³¹The use of *ging(en)* did not correlate significantly with age, however. Because chronological age is a more valid measure for linear progress in typically developing children than in children with SLI, only the normals (both control groups, n=55) were included in the correlation analysis. Taking chronological age as a reference point, only one of the past tense categories - regular past tense - showed a significant correlation (p<.01) with age.

recognised that we are dealing with a modest corpus here. Nevertheless, the tendencies are interesting enough to deserve probing in a larger collection of data in the future.

Again, remember that we are looking at a subset of the past tense data. Only the utterances that contained an obligatory context for a past tense form are considered. The total of obligatory contexts in the SLI children's samples numbered 469. In 81 instances tense was not or incorrectly marked. Table 4.5 presents a further categorisation by error type and verb category. In view of the numbers of irregular and regular forms in the data, regular verbs were affected more often proportionally. When counted by obligatory contexts, only 33% of the contexts were properly filled for regular verb contexts, 83% for irregular verbs, 98% for *gaan* as auxiliary. This suggests a discrepancy between regular and irregular verbs. It also suggests that *gaan* is a willing (and perhaps early) 'tense carrier'.

The accepted truth is that tense errors will take the form of omission, not of substitution ('commission'; Bishop, 1994; Leonard, 1998). This is contradicted in the present data set by the frequent occurrence of substitutions by a present tense form.

Overgeneralisations were produced less often by the impaired children than by their chronological age peers (Table 4.2). However, there was no difference with the younger children and children with SLI did produce overgeneralised forms. This concurs with Leonard's (1994) findings. As in his results, some children produced overgeneralisations in one instance while omitting or substituting the past tense marker elsewhere in the sample. Leonard's solution to the witnessed paradox that was quoted before - that unmarked verb forms would occupy the paradigm cells of marked forms - has a limited appeal for the present data. Under one third of past tense errors concerned omissions of past tense inflections. They were exceeded in number by commission errors.

Table 4.5. Past tense omission types in the SLI data. Absolute numbers

<i>Total number of errors: 81</i>	<i>Stem form</i>	<i>Infinitival form</i>	<i>Present tense form</i>
Regular verbs	6	7	23
Irregular verbs	15	2	26 ³²
<i>Ging(en)</i> + infinitive			2

4.2.3.4 Conclusion

If all measures are considered - the number of occurrences and the ratio of uses and contexts - it is possible to evaluate the differences between groups in a meaningful way.

³²Out of these 26, 3 present tense forms occurred in dependent clauses in which a past tense form was required due to the tense value of the main clause.

In their control of regular past tense and in their use of *ging(en)* as a past tense filler the SLI children behaved much like the younger normals. This indicates that they were in an earlier stage of past tense proficiency and often adopted an immature strategy for (past) tense marking. There appears to be no reason to claim that the introduction of a pleonastic auxiliary is a device exclusive for SLI. As there were only two instances of an absent tense marker with *gaan* in an obligatory context in the SLI corpus it can be hypothesised that *gaan* carries tense more consistently than the lexical verb does. The present data are not adequate for testing the hypothesis that marking of *gaan* precedes marking of lexical verbs. That would require longitudinal research.

The assumption that children with SLI have difficulty in creating a morphological paradigm for the tense dimension is supported by the substitutions of a past tense morpheme by a present tense morpheme, but it is contradicted by two findings. First of all, the occurrence of overgeneralisations is not compatible with such a deficit. While these forms are erroneous, they show the child in the process of construing a past tense paradigm. By definition they do not derive from the input and therefore must be the outcome of a rule created by the child. Secondly, although the children with SLI produce fewer regular past tense forms, errors in marking past tense are found with irregular verbs as well. Irregular verbs are outside the scope of a symbolic rule for past tense formation. The problem, then, seems to reside in the consistent (correct) marking for tense, rather than in the paradigmatic challenges of the target language. This issue will be revisited in section 4.3, when present tense is included. Present tense requires more overt agreement marking: the paradigm is more elaborate (see 4.1.3).

Omissions and substitutions are a characteristic of the SLI group, but not all individuals are equally affected by problems with tense marking. Groupwise, the level of achievement is rather high. This highlights a key problem regarding the nature of SLI. It is clear that grammatical morphemes present SLI children with problems, but the children still manage to supply the marker in a majority of contexts (individual scores notwithstanding).

4.2.4 Subgroup selection

An additional aim of the past tense analysis was to discriminate, within the SLI group, between children who exhibit frank morphological errors and children who do not. Many children in the SLI group, though not the majority, were notable for their failure to mark past tense on the verb consistently. When past tense omission figures were related to obligatory context and an arbitrary criterion of 75% use was used, 12 out of 35 children with SLI failed the criterion. In section 4.3.4 the complementary findings for agreement will be described.

4.3 Subject-verb agreement

One purpose of the past tense analysis was to distinguish between children with and without problems in verb morphology. However, the influence of narrative mode was a major influence. Many children preferred the dramatic present to reproduce the

Pingu story or switched to present in the middle of a story told in the past tense. Also, the errors often were not restricted to the expression of tense but involved subject-verb agreement features as well. Marking for number and person proved to be a major problem for the SLI children. In this section, marking for agreement is investigated. A description of the agreement errors that characterise Dutch children with SLI is supplied first.

4.3.1 Three types of agreement errors

From the data gathered in the present study, it can be inferred even at first glance that not all possible agreement errors occurred. Morphemes are not distributed at random, even when they are erroneous. Subject-verb agreement errors in the Dutch corpus take three general forms. The nature of each will be discussed in this section. Subsequently, the occurrence of these errors in the output of the children will be quantified.

1. One inflectional error is the omission of the agreement marker, resulting in the production of a stem form (henceforth to be referred to as **Error 1**). Because first person singular is identical to the verb stem, an omission can be identified only in an obligatory context for second and third person singular or for plural inflection. Second person is the least frequent form. It is also not promoted by the task, which encouraged a third person narrative. Second person forms were nearly absent from the data.

Examples of Error 1 follow³³.

dan ga mama nog zwaaien (boy, 6;5)
 'dan gaat mama nog zwaaien'
then go (UVF) mother after+all wave (INF)

die gooi 'm in de lucht (boy, 6;5)
 'die gooit 'm in de lucht'
that+one throw (UVF) him in the air

Omission of the third person marker results in a reduction to the stem of the verb. Superficially this form is also sometimes found with a plural subject:

toen kom papa en mama aan (girl, 7;5)
 'toen komen papa en mama [er] aan'
*then come (UVF) father and mother*³⁴

³³The first line contains the child utterance verbatim. It is followed by the correct version of the same sentence (in a minimal paraphrase). The third line is a literal translation of the child utterance. UVF = unmarked verb form; INF = infinitival. Due to the fact that the unmarked verb form (that is, the form without the agreement marker, the stem) is a homonym of the first person singular, present tense, I use the term with some reservation. Examples are from the utterances of language-impaired children involved in this study; chronological age is given in years and months (before and after the semicolon).

It is not obvious how Error 1 should be interpreted. Assuming it is the stem (infinitive minus *-en*) is one possibility, attributing the wrong values to the dimensions person and number another (due to the homonymy of the stem and the first person singular). One thing that has to be stressed is that there is a difference between English and Dutch here. While the infinitive in English has no affix, the infinitive in Dutch has an affix *-en*. Omission of third person *-s* in English results in an unmarked verb form (Fletcher & Peters, 1984). The stem in Dutch has to be extracted from the infinitive form which suggests that the child is capable of morphological analysis. The stem in Dutch child language seldom appears in final position, unlike the infinitive. Because of the close relationship between verb position and finiteness in the acquisition of Dutch, I propose that the stem occurrences in second position be considered finite.

2. Another error points at a wrong value for the dimension number (**Error 2**). Third person plural subjects are often not followed by a verb that is marked for plural. Instead, the verb form is singular:

dat doet altijd mijn vade [vader] en moeë [moeder] (boy, 6;11)
 'dat doen altijd mijn vader en moeder'
that does (SING) always my father and mother

en toen ging ze springen op bed (boy, 7;7)
 'en toen gingen ze springen op bed'
and then went (auxiliary, SING) they jump (INF) on bed

We find three ways in which children fail to respect agreement features with plural subjects: the third person singular marker *-t* is wrongly affixed to the stem (as in the first example), the singular past tense form is substituted for the plural past tense form (second example) or the stem is substituted for the inflected form (which makes it an instance of Error 1; after all, no overt singular marker takes the place of the plural marker).

3. The last error type is difficult to interpret. Chronologically, there is a well-documented stage in normal acquisition of Dutch (mainly up to the two-word or three-word utterance stage) in which children predominantly produce infinitival verbs in utterance-final position (Wijnen & Verrips, 1998). Some Dutch children with SLI persist in this verbal position and form without justifying it by inserting an auxiliary in second position (**Error 3**). The SLI children, however, often produce more constituents than is typically the case in children who are in the 'infinitival stage'. The presence of one or more arguments between the subject and the verb lends these productions a 'deviant' flavour, in the sense that such utterances are not found in normal children at any stage (Bishop & Rosenbloom, 1987). Deviance may formally

³⁴This utterance also contains a tense error. *Toen* is a past adverbial and creates an obligatory context for a past tense form. The proper verb form should be the irregular past tense form *kwamen* instead of *komen*.

be a misnomer, however. In SLI, delayed acquisition of verb morphology can coexist with elaboration of the constituent structure. This asynchrony potentially results in utterances like the ones quoted underneath. Apparent deviance may thus be secondary to a primary (and long-standing) delay in the marking of finiteness.

In the first example below the form is in fact correct (the subject is plural and in Dutch the infinitival form and the plural form are homonyms) but - as indicated by the Dutch paraphrase - the verb has not been moved to the position where it should occur if marked for person, number and tense (i.e. there is no evidence of Verb Second). *Maken* is therefore interpreted as an infinitival form.

hun allemaal rommel maken (boy, 6;11)³⁵

'hun maken allemaal rommel'

they all+sort+of rubbish make

en dan mama papa wakker maken (boy, 6;5)³⁶

'en dan maakt mama papa wakker'

and then mother father awake make

eerst 't kleine zusje in bed springen (boy, 6;5)

'eerst springt 't kleine zusje in bed'

first the little sister in bed jump

de oudste pinguin alle kleren uit de kast halen (boy, 9;1)

'de oudste pinguin haalde alle kleren uit de kast'

the oldest penguin all clothes from the cupboard take

With some caution, the three error types can be summarised in a matrix as follows:

	<i>Finiteness</i>	<i>Tense</i>	<i>Person</i>	<i>Number</i>
Error 1	Marked	Marked?	Not marked	Not marked
Error 2	Marked	Marked	Not applicable	Not marked correctly
Error 3	Not marked	Not marked	Not marked	Not marked

While this matrix represents the most plausible reading, it is important to stress that it is an interpretation. Likewise, the categories themselves are not purely descriptive. The surface forms that are found as instances of these errors can often be considered to be formally ambiguous. This must be kept in mind as we search for a linguistic explanation for the errors. I will illustrate the ambiguity with two examples.

³⁵In fact *hun* ('them') is a pronoun marked for dative case. This form is used habitually instead of nominative *ze/zij* in colloquial Dutch.

³⁶In (b) and (c) there is a topicalised adverbial that should trigger movement of the finite verb.

The stem with zero affixation (Error 1), in the context of a third person singular subject, clearly lacks a third person marker. As it has been moved to second position, it could be considered finite, though not marked correctly for person. In fact, the stem + *0* - form is correct for first person. To adopt an alternative explanation - that the verb shows an erroneous marking for person (first person instead of third) rather than an omission of a marker - is not a very plausible option (also considering the distributional characteristics: the form is found in plural contexts as well) but it cannot be discarded on formal grounds: stem and first person singular simply exhibit syncretism.

Another example involves the Error 3 utterances. The homonymy of plural and infinitive was mentioned before. The exemplary utterances can also - and this will prove to be a valid interpretation to consider - be read as utterances in which an auxiliary is omitted. I will return to this reading in the chapter on linguistic theories (5.2.7).

A difficult issue is the distinction between finiteness and tense. In the debate on the Optional Infinitive explanation (2.6.9) the two are almost synonymous. Finite equals tense-marked and, according to Rice et al. (1995), finiteness presupposes proper marking for agreement features. For Dutch, it is undesirable to accept the strict correlation of finiteness and agreement. The equivalence of finiteness and tense is at stake where children prefer the stem (Error 1) form with, say, a third person singular subject: while this form is not infinitival, it lacks agreement marking. This issue will be resumed in 5.2.6.

There is one other ambiguity. If the verb is irregular, tense-changing would invite change in the stem vowel. When a child produces the stem form of an irregular verb in a past tense obligatory context, it could then be said that for lack of a vowel change the form is to be read as present tense. If the verb is regular and the subject is third person, it could be read as a lack of tense as well as agreement marking (neither *-de* nor *-t* is supplied). I will side-step this dilemma (for which feature, exactly, *is* the verb marked?) by categorising the same error under different headings: missing past tense marker and missing agreement marker, both according to linguistic context. That way, we will only have to decide on the *absence*, not the *presence* of a marker.

4.3.2 Agreement: Analytical categories

While the three error types have been introduced as if they are smooth recognisable categories, some decisions have to be made in advance to make them coherent. The reason is that categories occasionally overlap, either with a different kind of agreement error or with categories that have been used to classify past tense.

The absence of a past tense marker can result in a finite form that is not marked for agreement, i.e., a stem. Such forms have been recorded in Tables 4.2 and 4.3 as omissions of past tense markers. The same instances are revisited here, because these forms are not marked for agreement features either. Consequently, they are coded as instances of Error 1 (examples (1) and (2) below).

The same goes for Errors 2 and 3. A past adverbial may be accompanied by a present tense form that also exemplifies an incongruous marking for number (say, *-t* instead of *-en*) or by an infinitival form while there is a sentence subject that calls for proper

agreement features (Examples (3) to (5)). It is necessary to code these instances twice as well. The same forms may represent a difficulty with marking of tense as well as agreement. Formally, they show the hallmarks of both problems.

Another problematic error type is the use of a stem with a plural subject (as in the example referred to in section 4.3.1: *toen kom papa en mama aan*). I propose that finiteness is marked (as the verb is not in the infinitive) but no requirement for agreement features has been fulfilled (that is, person nor number is marked). Hence, Error 1 (not 2). However, I will include these cases in the analysis of obligatory contexts for use of a plural form: they will be in the numerator of the ratio (just as the instances of Error 2 are) in which the number of obligatory contexts for a plural suffix is the denominator. After all, both *-t* forms and stems fail to oblige the number feature of the plural subject.

Finally, a problem is created by the occurrence of *-en* forms in a non-final position, in a singular subject context. It can be argued that in these cases verb movement has taken place and the number feature is not satisfied. However, in most cases the intonation or the sentence structure relegates the postverbal elements to the status of an adjunct or apposition, so the subject predicate structure shows no movement of the verbal element. Such instances have been confidently added to the inventory of type 3 errors. The erroneous *-en* forms that are genuinely 'second' (in that the direct argument is postverbal) have been singled out - one example is (6).

- | |
|---|
| <p>(1) <i>toen val alles d'r uit</i> (boy, 6;5)
 'toen viel alles d'r uit'
 <i>then³⁷ fall (UVF) everything out</i></p> <p>(2) <i>toen gooi die hoed op hem</i> (boy, 8;9)
 'toen gooide die [een] hoed op hem'
 <i>then threw that+one [a] hat on him</i></p> <p>(3) <i>en toen de moeder hem wakker maken</i> (girl, 9;1)
 'en toen maakte de moeder hem wakker'
 <i>and then the mother him awake make (INF)</i></p> <p>(4) <i>en toen komt z'n vader en z'n moeder</i> (boy, 7;4)
 'en toen kwamen z'n vader en z'n moeder'
 <i>and then comes his father and his mother</i></p> <p>(5) <i>toen zegt hun ik heb niet gedaan</i> (boy, 7;4)
 'toen zeiden hun ik heb [het] niet gedaan'
 <i>then says they I have [it] not done</i></p> <p>(6) <i>hem zijn ook verdrietig, die moeder</i> (boy, 7;2)
 'zij is ook verdrietig, die moeder'
 <i>him³⁸ (ACC) be (INF) also sad, that mother</i></p> |
|---|

4.3.3 Agreement: Results

While looking at the token quantities of each error type produced by the children with SLI and the controls, one should keep in mind that similar errors are evidenced quite

³⁷Remember (4.2.2) that the Dutch adverb refers to a *past* event.

³⁸Obviously, the child makes a case-marking error but he also selects a wrong (masculine) pronoun.

often by younger normally developing children. The fact that these errors hardly ever occurred in our control group probably reflects the age of the normal children.

In an inventory made by De Haan (1996), a survey is given of the markings for number and person by normal children whose output has been recorded in detail in five Dutch corpora. The children were between 1;8 and 3;7 years old. Errors 1 and 2 reached percentages of over 25%, and at the end of the observation period the percentage of errors was still increasing. Error 3 was not explored in De Haan's study, because only finite forms were analysed.

Errors 1 and 2 should, I suggest, be considered immature rather than deviant, to borrow a dichotomy from Bishop and Rosenbloom (1987). They are immature in that they *do* occur in the output of younger normals and thus are not exclusive to language-impaired children. With Error 3, the situation is slightly different. Non-finite forms in final position without premodification - we know this from many studies (see Wijnen & Verrips, 1998, for a review) - also appear frequently in the output of non-impaired Dutch children, but mainly in the two- and three-word stage. That they occur in more elaborate utterances in the present corpus, makes many of the Error 3 expressions so uncommon-looking. Some of these utterances are arguably not found in any stage of normal development and could in that sense be considered deviant (Crystal, Fletcher & Garman, 1976).

In the comparison I present underneath (Table 4.6), it appears that the controls, who are all over 3;11, by and large have recovered from the stage during which they make these errors. They show very few errors in marking for number and person (the same was true for marking of past tense; 4.2.3). Due to methodological differences (foremost in sampling conditions), it is not possible to compare these findings directly to the corpora to which De Haan referred. Still, the sum of the tendencies in either set of data suggests that a resolution of the stage in which erroneous agreement marking is still endemic takes place roughly between 3;6 and 4;6 years of age.

With regard to the SLI group, it can be established that the three types of errors are quite common among the children in this pool. If we take the younger control group to be a fair language age equivalent of the SLI group, it can be stated that the number of errors in the samples of the language-impaired children is disproportionately high: their error pattern does not resemble that of the younger controls quantitatively. In that sense, their performance confirms a telltale sign of language impairment that is highlighted in the mainstream of research: that the children's problems with morphology are beyond what one would expect based on their general language delay. To describe the pattern in more detail: most of the children may be beyond the (E)OI stage³⁹ but some children persist in preferring infinitives. Even when finiteness appears to be available, proper agreement marking is often lacking.

³⁹This is not to say that an extended stage in which children with SLI predominantly use infinitives does not exist. First of all, the evidence is equivocal. Moreover, it may well be that in a group of younger children with SLI this stage will be more evident. The make-up of a Dutch (E)OI stage will be discussed later.

Table 4.6. Agreement errors. Absolute numbers: means (standard deviations)

	Children with SLI (n=35)	Younger ND children (n=20)	CA matches (n=35)
Age in months	93.4 (11.9)	59.6 (7.4)	91.4 (13.8)
Number of T-units	66.1 (16.9)	49.6 (14.9)	59.3 (14.3)
Agreement error 1	4.60 (6.45)	0.20 (0.69)	0.11 (0.40)
Agreement error 2	2.68 (2.35)	0.40 (0.75)	0.37 (0.64)
Agreement error 3	2.85 (5.36)	0.10 (0.31)	0.03 (0.17)

Significant differences:*Error 1*

SLI > Chronological age peers (p=0.0000; Z=-6.1706)

SLI > Younger children (p=0.0000; Z=-4.8837)

Error 2

SLI > Chronological age peers (p=0.0000; Z=-4.8582)

SLI > Younger children (p=0.0001; Z=-4.0072)

Error 3

SLI > Chronological age peers (p=0.0000; Z=-5.2839)

SLI > Younger children (p=0.0001; Z=-3.8769)

4.3.3.1 Use of agreement morphemes in obligatory context

Like the past tense categories, the present error categories produce absolute figures that cannot be compared easily, due to the varying numbers of T-units elicited from the children. Therefore, the number of errors was divided by the number of obligatory contexts. This was only possible for Error 1 (Table 4.7) and Error 2 (Table 4.8). These error types can be analysed as the straightforward omission or substitution of a morpheme: either *-t* or *-en*. Error 3, in which the infinitival verb remains *in situ*, does not allow for an obligatory context analysis. The verb is not in a position in which it has to agree with the subject.

As with the past tense marker, not all children provided contexts for the third person singular marker *-t*. This was true for the SLI group, but even more so for the CA matches. The absence of obligatory contexts for *-t* correlates with the presence of contexts for a past tense marker. If children did not produce contexts for present tense markers this was usually because they adopted the past tense in their narrative responses. For *-en*, on the other hand, obligatory (plural) contexts could be found in the samples of all children.

Table 4.7. Third person present marker **-t**; percentage of use in obligatory context; means (standard deviations)⁴⁰

	Children with SLI (n=31)	Younger ND children (n=15)	CA matches (n=16)
Age in months	93.0 (11.9)	59.1 (7.5)	92.3 (14.6)
Percentage of use of -t marker for third person in obligatory context	0.61 (0.34)	0.87 (0.28)	0.89 (0.27)

Significant differences:

SLI < Chronological age peers (p=0.0012; Z=-3.2397)

SLI < Younger children (p=0.0037; Z=-2.9040)

Table 4.8. Plural marker **-en**; percentage of use in obligatory context; means (standard deviations)

	Children with SLI (n=35)	Younger ND children (n=20)	CA matches (n=35)
Percentage of use of -en marker for third person in obligatory context	0.69 (0.30)	0.95 (0.13)	0.97 (0.05)

Significant differences:

SLI < Chronological age peers (p=0.0000; Z=-4.8199)

SLI < Younger children (p=0.0001; Z=-3.8446)

4.3.3.2 Subtypes of agreement errors

Table 4.6 presented means and standard deviations for each of the three broad error types that were distinguished before. It is clear that the errors are nearly exclusive to the SLI population (the same was true for omission of past tense markers). I will now differentiate the total numbers of these categories into subtypes, for the children with SLI only.

Error 1, in which the verb lacks an inflectional marker, totals 163 occurrences. Out of these, 18 utterances had no subject but appeared in a context where the subject could be inferred from the situation or the linguistic context. In the remaining 145 utterances that contained an overt subject, 110 grammatical subjects were singular and 35 were plural.

Error 2, the substitution of a singular verb form after a plural subject, was found 94 times. Six occurrences concerned irregular present tense forms and 65 were irregular

⁴⁰In Table 4.7, ages were adjusted, due to the different composition of the groups.

past tense forms. On 23 occasions a regular present tense form with third person singular *-t* marker was substituted for the plural form.

Error 3 requires some additional remarks. While in the majority of occurrences children produced clause-final verbs, this was not always the case. There were 82 type 3 errors. Out of these, 4 were contained in dependent clauses (with singular subjects). Among the 78 clause-final verbs there were some utterances that contained a verb in non-final position. The reason these utterances were not excluded was that the verb did not immediately follow the subject, but followed an internal argument. The intonation that the child adopted relegated the remainder of the utterance to an appositive function.

Eighteen utterances contained a verb in genuine second position with an *-en* affix (again with singular subjects) - these occurrences deserve a separate category. Obviously, this verb form can be considered an erroneous plural marking as well (Error 2 in reverse).

4.3.3.3 Conclusion

As with past tense, the children with SLI in this study did not consistently produce verb forms that are correctly marked. Agreement errors took three forms. The errors consisted of under-specified forms (infinitives or stems) or forms that were incorrectly marked.

The error pattern raises an issue that I have hinted at a few times without discussing its implications in depth. There is a dichotomy in the studies on SLI. On the one hand, children with SLI are seen as being less than consistent in their marking of roots for grammatical subject features. On the other hand, it is claimed that these children fail to grasp the correct paradigm through which features are substantiated. A clear defence of the first position is formulated by Bishop (1994) who coined the term 'vulnerable markers'. The second position is, I think, represented by researchers that predict an asymmetry between irregular and regular forms to the extent that the linguistic rule that guides the general paradigm is deficient in children with SLI (e.g. the supporters of a Rule Deficit account; 2.6.4).

Two types of evidence feed these contrasting positions. Omission of an obligatory morpheme is one. It is associated first of all with a 'vulnerable markers' position. The inconsistency (that has children oscillating between marking a feature and omitting the marker) makes morphemes look vulnerable. Problems with the target paradigm might more typically take the form of errors in which one marker (or: the occupant of one paradigm cell) is substituted by another. If a cell in the paradigm is filled by the wrong form, one expects the error pattern to be consistent: the substitutions should follow a predictable pattern.

While a general pattern follows rather nicely from the two positions, it is not so easy to attribute the errors themselves to either source of morphological difficulties. Let me cite one example. The *omission* of a past tense marker (not substituted by a present tense marker!) will not primarily be read as a paradigmatic error. The functor here is the past adverbial. It is not obviously the case that a false choice is made within the paradigm. In the paradigm for the dimension tense, the other cell would contain the present tense form. Still, there is room for doubt: it could also be said that the child

had trouble filling the tense paradigm in the first place, if we consider the fact that bare stems may fill either cell (as with *put*). It is clear that caution is called for when either kind of evidence is used to support or reject theories on grammatical impairment.

4.3.4 Subgroup selection

A secondary aim of this analysis was to explore how many language-impaired children failed to reach a criterion of 75% use of relevant inflectional morphemes, this time for agreement features, in obligatory contexts. Error 3 does not allow for such an analysis because it does not reflect a simple omission for which a context can be established. Judging by the group results, agreement is marked less often by SLI children than past tense (witness Tables 4.3, 4.7, 4.8). The mean for past tense marking was above the 75% value, the means for both agreement morphemes are below this cut-off point.

Nine children showed no significant evidence of morphosyntactic problems (and were labelled M-; see 3.4.3.1) when measured by use in obligatory contexts, whether for tense or agreement marking. Adding the results from the past tense analysis, 13 children failed to pass the 75% criterion in at least two of the categories for which obligatory contexts were found. Two children produced a high number of Error 3 patterns (and in addition failed the criterion for past tense marking) and were added to the M+ group as well. Consequently, 15 children were considered to exhibit marked difficulties in morphological marking of verbs. These (9 + 15) children will be entered in the comparison in chapter 7, where children who do or do not show inflectional difficulties will be compared with each other for their performance on the verb argument structure task (as announced in section 3.4.3.1, 11 children who passed the 75% criterion but did show signs of weak morphological performance were excluded from the M- group, in order to create a distinct profile for the groups to be compared).

4.4 Variability

So far, the description of the tense and agreement results has concentrated on group comparisons. Obviously, group differences are validated by statistical tests. One influence that statistics protects us against is the individual differences in the subjects' responses. Nevertheless, where specific language impairment is concerned, variability is a factor that should not merely be taken account of statistically. It also deserves attention in its own right.

The standard deviations contained in the tables illustrated the extent to which individuals differed in the number of errors they made. An elegant and transparent way of visualising distribution in samples is provided by boxplots. The boxplot is a type of graph which is used to show the shape of the distribution, its central value, and variability. The boxplot picture consists of the most extreme values in the data set (maximum and minimum values), the lower and upper quartiles, and the median.

To illustrate the variability in the SLI group, Figure 4.2 shows boxplots of the three agreement error types. Group 1 consists of the language-impaired children, Group 2 of

the younger normally developing children and group 3 of the chronological age matches. I will mark out some tendencies that are noticeable. The boxplots highlight the fact that the differences that we found do not concern high error figures, even among the impaired children. However, there are outliers and extreme outliers - in particular the figures for some children with SLI who produced a disproportionate number of Error 3 tokens are striking. For Error 2, an error type that is also found (though more rarely) among the controls, the results show a wider spread and no outliers. It would be interesting to trace these patterns over time. In particular, comparative data from younger children - children with SLI as well as typically developing children - could be revealing.

